

SER-FIBER-SM
Industrial RS-232/RS-485/RS-422 To
Fiber Optic Single Mode Converter

Datasheet Revision 2.3



GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Externally Powered
- Fiber optic range of up to 12.4 miles (20 km)
- RS-232 / RS-485 / RS-422 can be mixed or matched
- Available with ST or SC type connectors
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- 5 year manufacturer's warranty
- RoHS, CE, and FCC certified

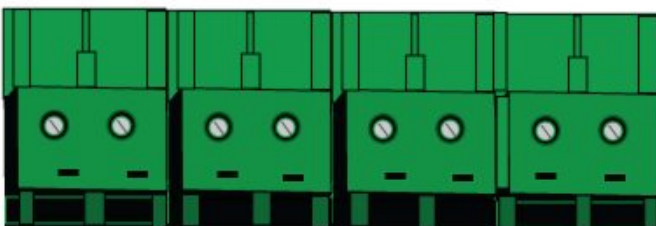
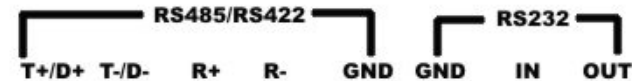
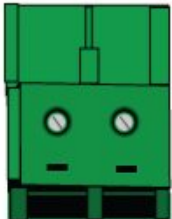
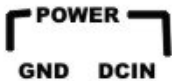
DESCRIPTION:

The SerialComm SER-FIBER-SM is a industrial grade bi-directional externally powered multi-functional RS-232/RS-485/RS-422 to Single Mode Fiber Optic Converter which converts either full-duplex RS-232, half-duplex RS-485 or full-duplex RS-422 to a Single Mode SC or ST connector type fiber optic link. A data direction auto-turnaround feature automatically enables the serial transmit and receive data signals when data is present, avoiding the need for software drivers, and making the device fully plug-and-play. The SER-FIBER-SM has a 8 position terminal block for the serial port, and either an ST type or SC type connector for the fiber optic link. The unit extends the maximum distance of any RS-232/RS-485/RS-422 signal up to 12.4 miles (20 km) using SM fiber optic cable. The unit is enclosed in a rugged steel housing. An external power supply is included.

CERTIFICATIONS:



CONNECTORS:



SPECIFICATIONS:

| COMMUNICATION | |
|-----------------------------|--|
| STANDARDS: | EIA/TIA RS-232C, RS-485 and RS-422 Standards |
| MODEL NUMBERS: | SER-FIBER-SM-ST - ST Connector Version SER-FIBER-SM-SC - SC Connector Version |
| BAUD RATES: | From 300 bps to 460,000 bps |
| CONNECTOR TYPES: | DC Input: 2-way Terminal Block, Serial Side: 8 Position Terminal Block and Fiber Side: either 2 X ST Connectors or 2 X SC Connectors |
| DISTANCE: | RS-232 Side: 16ft (5m), RS-485/RS-422 Side: 4000 ft (1.2km) and Single Mode Side: 12.4 miles (20km) |
| ELECTRICAL | |
| POWER SOURCE: | 9VDC to 36VDC |
| DC/AC POWER ADAPTER: | Included 9VDC / (100 - 240VAC 50/60hz US Type A Plug) 500 mA |
| POWER CONSUMPTION: | 4 Watts |
| STATIC PROTECTION: | 15KV Electric Static Discharge (ESD) Protection |
| SURGE PROTECTION: | 600W/Sec Surge Protection |
| FIBER OPTIC | |
| FIBER OPTIC CABLING: | Compatible with Single Mode: 8.3/125um, 8.7/125um, 9/125um or 10/125um Fiber Optic Cable |
| WAVELENGTH: | 1310nm |
| MECHANICAL | |
| HOUSING: | Heavy Duty Steel Housing |
| DIN RAIL: | Optional DIN Rail Mounts |
| WEIGHT: | With ST Connector: 8.87oz (251.4 grams) With SC Connector: 8.73oz (245.3 grams) |
| DIMENSIONS: | With ST Connector: 4.96" X 3.58" X 0.87" (126.0 mm X 91.0 mm X 22.0 mm) With SC Connector: 4.65" X 3.58" X 0.87" (118.0 mm X 91.0 mm X 22.0 mm) |
| ENVIRONMENTAL | |
| OPERATING TEMP: | -40° F to 185° F (-40°C to 85° C) |
| STORAGE TEMP: | -40° F to 185° F (-40°C to 85° C) |
| OPERATING HUMIDITY: | 5% To 95% - No Condensation |
| QUALITY | |
| PRODUCT SAFETY: | CE, FCC and RoHS Conformance Certified |
| QUALITY MANAGEMENT | Manufactured and Distributed to ISO 9001:2008 |
| RELIABILITY: | Low Failure Rate – 99+% Reliability Since Inception |
| WARRANTY: | 5 Year Replacement Warranty |

LED INDICATIONS:

| | | |
|-----|-------------------------|--|
| PWR | Power Indicator | ON: Power On - OFF: Power OFF |
| RX | Data Receive Indicator | ON: When Power is Connected, OFF: When Fiber is Connected, FLASHING: When Data is Received |
| TX | Data Transmit Indicator | FLASHING: When Data is Transmitted |

FLEXIBLE SERIAL CONVERSION:

This serial converter is versatile. Not only can you extend RS-232C, RS-485 or RS-422 data but convert from one serial protocol to another. For instance on one end of the fiber optic you can connect RS-232C and the other RS-485 or RS-485 to RS-422 or any other combination.

APPLICATIONS:

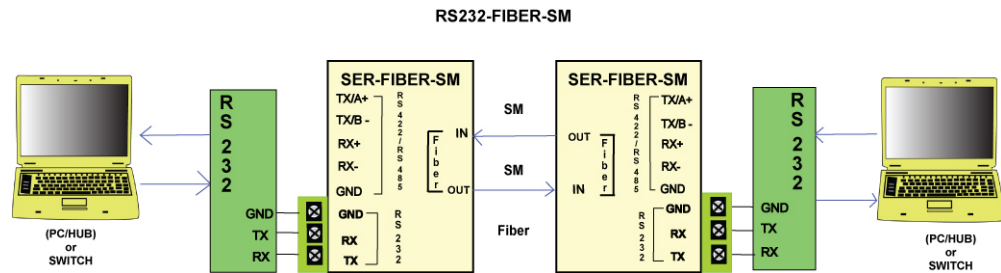


FIGURE 1: EXTENDING RS-232 DATA DISTANCE

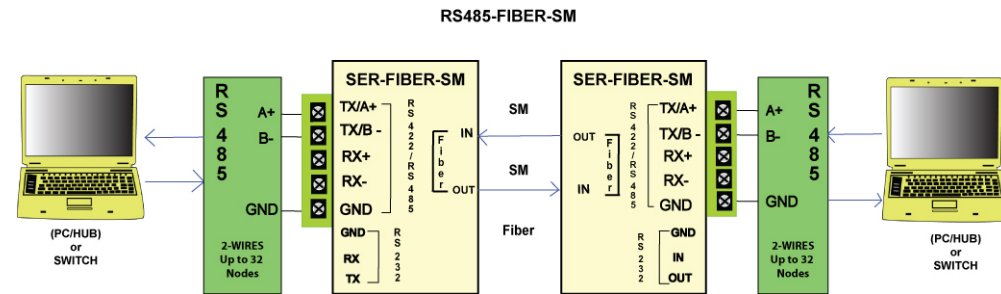


FIGURE 2: EXTENDING RS-485 DATA DISTANCE

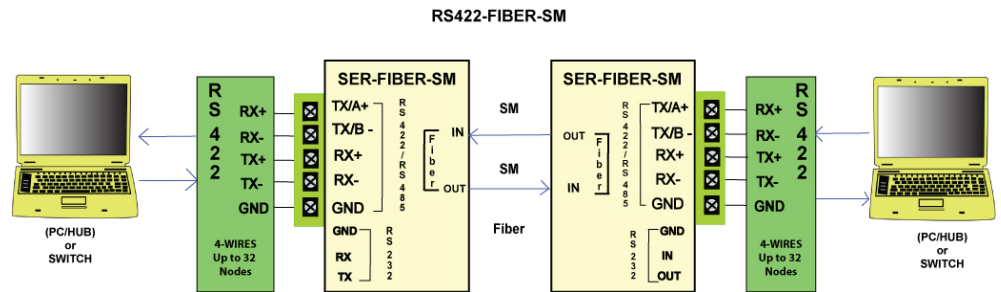
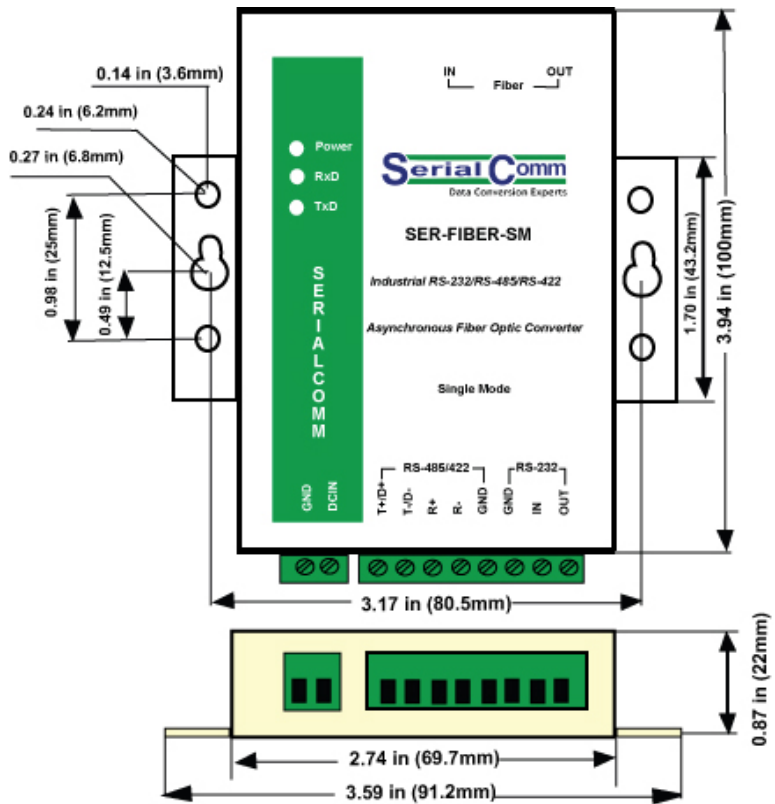


FIGURE 3: EXTENDING RS-422 DATA DISTANCE

DIMENSIONS:



TROUBLESHOOTING INSTRUCTIONS:

Using one SER-FIBER-SM unit:

1. Perform a loop back test on one unit:
 - a) Plug the power connector to the converter. Both the PWR light and RX light should be on.
 - b) Connect the fiber optic in to fiber optic out. Only the PWR light should be lit.
 - c) Connect the RS-232, RS-485 or RS-422 port to a PC.
 - d) Running a hyper terminal program on the PC, send ASCII characters to the SER-FIBER-SM converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the SER-FIBER-SM unit is working properly.
 - e) When data is transmitting to the converter the TX light should blink and when the converter is receiving data the RX light should blink.

Using two SER-FIBER-SM units:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on two units:
 - a) Plug the power connector to both converters. Both the PWR light and RX light should be on both units.
 - b) Connect the fiber optic in of one converter and fiber optic out to the other converter.
 - c) Connect the fiber optic out of one converter and fiber optic in to the other converter.
 - d) Only the PWR light should be lit on both converters.
 - e) Connect the RS-232 connections to two RS-232C ports or connect the RS-485 connections to two RS-485 ports or connect the RS-422 connections to two RS-422 ports.
 - f) Running hyper terminal programs on both PCs, send ASCII characters to the SER-FIBER-SM converter from one PC port, and check that the characters are received at the 2nd PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both SER-FIBER-SM units are working properly.
 - g) When data is transmitting to the converter the TX light should blink and when the converter is receiving data the RX light should blink.